

CLAIMS

What is claimed is:

1. A piston chamber assembly comprising:
 - a chamber;
 - a piston slideably received in said chamber, said piston having a first piston side and a second piston side;
 - a first inlet for communicating a fluid into said chamber on said first piston side;
 - a second inlet for communicating a fluid into said chamber on said second piston side; and
 - an actuator movable between a first position and a second position, said actuator for selectively opening said first inlet and closing said second inlet when in said first position and said actuator for selectively closing said first inlet and opening said second inlet when in said second position wherein said piston is coupled to drive said actuator between said first position and said second position.
2. The piston chamber assembly of Claim 1 wherein said actuator comprises a body in said chamber, said body selectively movable between a first direction towards said first position and a second direction towards said second position.

3. The piston chamber assembly of Claim 2 wherein said piston is arranged to impart momentum to said actuator selectively between said first direction and said second direction, thereby moving said actuator between said first position and said second position.

4. The piston chamber assembly of Claim 3 wherein said actuator comprises a first portion and a second portion, said piston supported to move between said first portion and said second portion alternating in said first direction and said second direction to impart momentum to one of said first portion and said second portion.

5. The piston chamber assembly of Claim 4 wherein said first portion closes said first inlet in said second position and said second portion closes said second inlet in said first position.

6. The piston chamber assembly of Claim 5 including a retaining feature for maintaining said actuator in one of said first position and said second position until a predetermined amount of momentum is received by said actuator.

7. The piston chamber assembly of Claim 6 wherein said retaining feature comprises a magnet.

8. The piston chamber assembly of Claim 1 wherein said actuator comprises a member rotatable by said piston between said first position and said second position.

9. The piston chamber assembly of Claim 8 wherein said piston is slideable relative to said member.

10. The piston chamber assembly of Claim 9 wherein said member has a cam selectively in contact with said piston to rotate said member between said first position and said second position.

11. The piston chamber assembly of Claim 10 wherein said piston is slideably mounted to a groove in said member, said cam defining a portion of said groove.

12. The piston chamber assembly of Claim 8 wherein said member has a first portion with a first opening for communicating fluid from said first inlet into said chamber on said first piston side when said actuator is in said first position and a second portion with a second opening for communicating fluid from said second inlet into said chamber on said second piston side when said actuator is in said second position.

13. The piston chamber assembly of Claim 12 wherein said first portion closes said first inlet in said second position and said second portion closing said second inlet in said first position.

14. A piston chamber assembly comprising:

a chamber;

a piston slideably received in said chamber, said piston having a first piston side and a second piston side;

a first inlet for communicating a fluid into said chamber on said first piston side;

a second inlet for communicating a fluid into said chamber on said second piston side;

an actuator movable between a first position and a second position, said actuator for selectively opening said first inlet and closing said second inlet when in said first position and said actuator for selectively closing said first inlet and opening said second inlet when in said second position wherein said piston is coupled to drive said actuator between said first position and said second position;

wherein said actuator comprises a member in said chamber, said member selectively rotatable between a first direction towards said first position and a second direction towards said second position; and

wherein said piston is arranged to impart momentum to said actuator selectively between said first direction and said second direction, thereby moving said actuator between said first position and said second position.

15. The piston chamber assembly of Claim 14 wherein said piston is slideable relative to said member.

16. The piston chamber assembly of Claim 15 wherein said member has a cam selectively in contact with said piston to rotate said member between said first position and said second position.

17. The piston chamber assembly of Claim 16 wherein said piston is slideably mounted to a groove in said member, said cam defining a portion of said groove.

18. The piston chamber assembly of Claim 14 wherein said member has a first portion with a first opening for communicating fluid from said first inlet into said chamber on said first piston side when said actuator is in said first position and a second portion with a second opening for communicating fluid from said second inlet into said chamber on said second piston side when said actuator is in said second position.

19. A piston chamber assembly comprising:

a chamber;

a piston slideably received in said chamber, said piston having a first piston side and a second piston side;

a first inlet for communicating a fluid into said chamber on said first piston side;

a second inlet for communicating a fluid into said chamber on said second piston side;

an actuator movable between a first position and a second position, said actuator for selectively opening said first inlet and closing said second inlet when in said first position and said actuator for selectively closing said first inlet and opening said second inlet when in said second position wherein said piston is coupled to drive said actuator between said first position and said second position;

wherein said actuator comprises a body in said chamber, said body selectively movable between a first direction towards said first position and a second direction towards said second position;

wherein said piston arranged to impart momentum to said actuator selectively between said first direction and said second direction, thereby moving said actuator between said first position and said second position; and wherein said actuator comprises a first portion and a second portion, said piston supported to move between said first portion and said second portion alternating in said first direction and said second direction to impart momentum to one of said first portion and said second portion.

20. The piston chamber assembly of Claim 19 wherein said first portion closes said first inlet in said second position and said second portion closes said second inlet in said first position.